school garden, studies on insects of economic importance, &c. The lessons are objective and practical, and from the stores of trustworthy information which they contain the teacher can select those topics most applicable to the locality and conditions under which he works. The volume is a plea for care and method, and we can recommend it to those teachers who desire to develop their work in this subject along sound lines. There are 178 illustrations, for the most part good, but several of those of insects might have been more carefully executed.

OUR BOOK SHELF.

An Introduction to Biology for Students in India. By Prof. R. E. Lloyd. Pp. xviii+298+15 plates. (London: Longmans, Green and Co., 1910.) Price 4 rupees (or 5*s*. 4*d*.)

THIS little book does not pretend to be a complete introduction to biology, and the title is perhaps somewhat misleading. It deals exclusively with certain invertebrate types and certain general principles, and appears to have been designed for the use more especially of Indian medical students. The author tells us in his preface that the book was written somewhat hurriedly, because it was urgently needed. The types dealt with have very properly been selected from the Indian fauna, and the work is evidently based very largely upon personal observations, for which the author deserves due credit. Some of the animals described, such as the fresh-water sponge, the scorpion, and the mosquito, are not usually dealt with in elementary text-books.

The work is of a strictly elementary character, but at the same time suffers somewhat from being rather too much up-to-date. Thus the chapter on heredity is practically confined to Mendelism. The author is not always happy in his definitions. He tells us that "the anterior end of an animal is that at which the mouth opens; the posterior end is where the anus is to be found. But difficulties sometimes arise in using these terms; for example, in a gasteropod mollusc, the mouth and anus open in the same direction." Surely it would be more correct to say that primarily the anterior end is carried foremost when the animal moves about, while the posterior end comes hindmost. It is difficult to excuse the spelling of the word "Foramenifera," and the statement that the shells of these animals are "always perforated by minute round apertures" is very misleading. Another misspelling against which we must protest is "chord," for "cord," in the case of the nerve-cord of Annelids. This is a mistake which is frequently made by elementary students, doubtless on the analogy of "notochord," which, of course, is really a Greek word.

It must not, however, be forgotten that this is a pioneer work written under great disadvantages. It shows a considerable amount of originality, both in scope and treatment, and should prove useful to those for whom it is intended. A. D.

Botany for High Schools. By Prof. G. F. Atkinson. Pp. xv+493. (New York: Henry Holt and Co., 1910.)

WHEN it is found that a school text-book of botany of average size contains, in addition to a course of morphology dealing with growth and work of parts of the flowering plant, a series of life-histories drawn from all the plant divisions and accessory chapters on ecology, economic plants and plant breeding, the question naturally arises whether careful exposition is not being sacrificed to variety. There are certainly objections to the inclusion of the life-histories from the lower cryptograms, as they are too sketchy to suffice for practical work; also the range and variation are too complex for the ordinary schoolboy or girl, while many teachers would prefer a good course of physiology or a grounding in the classification of vascular plants as an item in training.

Nearly half the book is devoted to the first part, in which the author presents a well-arranged account of the activities of the plant. The morphology of the vegetative organs is not so well ordered, and there are several unsatisfactory passages, such as the confusion between stem and shoot, unacceptable definitions of "decumbent" and parts of a leaf, and a misuse of cambium in describing the stem of the maize plant. The flowers, methods of pollination, and seed dispersal are treated at some length. The later chapters suffer from excess of generality or a tendency to the introduction of specialised topics, but it should be added that it is the author's intention to present outlines that are to be filled in by the teacher's lectures and practical work.

Proceedings of the Aristotelian Society. New series. Vol. x., 1909–10. Pp. 300. (London: Williams and Norgate, 1910.) Price 10*s*. 6*d*. net.

THE Aristotelian Society exists for the systematic study of philosophy, as to its historic development, and as to its methods and problems. It is an aristocratic body—intellectually speaking—consisting of about one hundred members, among whom are Mr. A. J. Balfour, Mr. Haldane, Prof. Sorley, Dr. Stout, Dr. Bernard Bosanquet, and Dr. Shadworth Hodgson.

In the latest volume of *Proceedings* there are papers on "Sensations and Images," by Prof. Alexander; "The Subject-matter of Psychology," by Mr. G. E. Moore; "Epistemological Difficulties in Psychology," by Dr. William Brown; "Kant's Account of Causation," by Mr. A. D. Lindsay; "Bergson's Theory of Instinct," by Mr. H. Wildon Carr; "Science and Logic," by Mr. E. C. Childs; "Some Philosophical Implications of Mr. Bertrand Russell's Logical Theory of Mathematics," by Mr. S. Waterlow; and two interesting papers on "Are Secondary Qualities Independent of Perception?" by Dr. Percy Nunn and Dr. F. C. S. Schiller respectively. The former takes up a position of vigorous realism, while the latter, with all his accustomed attractiveness of style—even when dealing with very technical matter—hopes to convince Dr. Nunn that philosophical salvation lies in humanism, for which the old terms idealist and realist have almost ceased to have meaning or interest. Dr. Nunn has a curious and rather novel argument in favour of there being possibly something really "there," in some hallucinations. He instances our old friend the "stick bent in a pool." To the eyes, it is bent, to the touch it is straight; in other words, its visual characters are not in the same position as its tactual. May we not therefore see a real thing which, to our other senses, is elsewhere? It is certainly a suggestive analogy, though risky.

Häusliche Blumenpflege. Eine Anleitung zur Pflege der dankbarsten Zimmer- und Balkon-Pflanzen. By Paul F. F. Schulz. Pp. vii+216. (Leipzig: Quelle and Meyer, n.d.) Price 1.80 marks.

ACCORDING to the author plant culture in the home is not sufficiently practised in Germany, and the object of the present work is to arouse more interest in the pursuit. Certainly if the plants for which instructions are given can be grown in the house, many having the time and taking a keen interest in flowers would be inclined to try their skill. The list includes Abutilon, Camellia, the Alpenrose, Bouvardia, Clivia, *Monstera deliciosa*, and *Odontoglossum grande*, in addition to the palms, geraniums, hydrangea, Cacta-

ceæ, and other plants that are generally recognised to be suitable for the purpose. The chief essentials to success are carefully prepared soil, good lighting, judicious watering, and, in many cases, an unheated room for winter storage; the good results observable in cottage rooms are quite in accord with the last condition.

The author first instructs in general processes, such as watering, potting, sowing, and the like, and then gives special directions for each plant or group of similar plants, arranging them according to habit. The instructions are full, clear and explanatory, so that anyone with an ambition for cultivating such plants as those named above without a greenhouse will be well advised to consult the book and work upon the lines indicated.

Flashes from the Orient, or a Thousand and One Mornings with Poesy. In four books, Spring, Summer, Autumn, and Winter. Book third, Autumn. By John Hazelhurst. Pp. x+280. (London and Aylesbury: Hazell, Watson and Viney, Ltd., 1910.) Price 1*s.* 6*d.* net.

READERS familiar with Mr. Hazelhurst's sonnets on summer will turn with interest to his verses dealing with subjects suggested by the phenomena and events connected with the fall of the year. His subjects range from "Enthusiasm" to "Misery," and from "The Sewing Machine" to "The Dome of Heaven"; and he finds music in them all.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

The Inheritance of Acquired Characters.

I AM rather disposed to think that Prof. Judd is right in saying that this "and similar problems were constantly present to Darwin's ever-open mind." They seem to me, indeed, to underlie the whole of the discussions in the second volume of the "Variation of Plants and Animals under Domestication"; and I believe it is generally considered that Darwin put forward his theory of "pangenesis" to account for the cases where some amount of direct influence of the environment appeared to be inherited.

The passage which Prof. Meldola quotes from the sixth edition of the "Origin" occurs word for word in the first (p. 44). It is interesting to note that in the interval between the two Darwin never saw any ground for altering the statement, though he modified others on the same page. I can have little doubt that, at any rate so far as plants are concerned, "the source of his . . . authority for" it is to be found in Alph. de Candolle's "great and admirable work," as Darwin calls it ("Origin," sixth edition, p. 89), "Géographie Botanique raisonnée." That appeared in 1855, and there is abundant internal evidence to show that it received from Darwin the most attentive study.

Great and admirable it certainly is, but it is impossible not to feel in reading it that, perhaps in the whole history of science, there has never been a more striking case of a *coup manqué*. For de Candolle had the same problem before him as Darwin, and he attacks it by the same method of patiently accumulating and sifting facts. He grasps the action of variation, heredity, and of cultural selection, but he fails to grasp the idea that nature might operate on the same lines as the cultivator, and natural selection constantly eludes him as it did Herbert Spencer.

It is true that de Candolle does not absolutely reject the effect of the environment, but he was led to the conclusion that it would act, if at all, with such extreme slowness as to be practically ineffective. It is difficult to give a brief quotation, but the following may suffice:—

"Toutes les fois qu'il a été question de l'influence du climat sur les végétaux, je me sais efforcé de combattre l'opinion d'une *acclimatation*, c'est à dire d'un changement dans la nature des espéces qui les rende, après quelques générations, plus aptes à résister aux influences défavorables d'un climat. J'ai applaudi au mot spirituel de du Petit-Thouars: 'L'acclimatation, cette douce chimère de la culture'" (pp. 1087–88).

It must I think be evident that, though he does not actually quote it, Darwin, from his use of the word "chimæra" ("Variation," ii., 313), has this passage in his mind. But he goes on to show that the problem is at once solved by natural selection. He states this, however, with his usual caution:—"Though habit does something towards acclimatisation, yet . . . the spontaneous appearance of constitutionally different individuals is a far more effective agent" (*loc. cit.*, 314), and though he appears, in the main, to have relied on de Candolle, he took some trouble to investigate the question for himself:—"Can we feel sure that our kidney-beans are not somewhat hardier? I have not been able, by searching old horticultural works, to answer this question satisfactorily."

I think, then, that it was upon de Candolle's conclusions, supported by his own investigations, that Darwin based the pregnant sentence which Prof. Meldola has quoted. And how pregnant every word in the book is can be little appreciated except by those who have more than a bowing acquaintance with its pages.

I cannot but agree with Prof. Judd that modern evolutionary theory had its root in Lyell. Nor do I think that in the cold light of history it will seem to "be going too far . . . to assert that if the Principles of Geology had not been written, we should never have had the Origin of Species." If the possession of Darwin is the glory of Cambridge, it is pleasant for a member of the sister university—though it says little about it—to know that it is secure in that of Lyell.

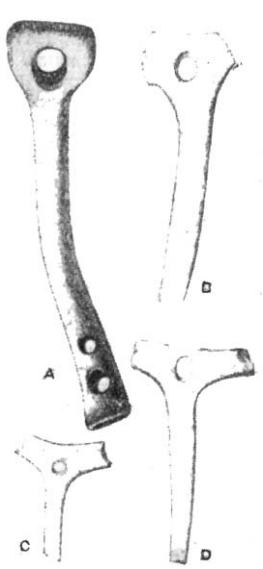
W. T. THISELTON-DYER.

Witcombe.

Palæolithic Shaft-straighteners.

IN a previous communication to NATURE (vol. lxxiv., p. 372, 1906) I directed attention to some Eskimos' arrow-straighteners which present a closer resemblance to the famous *bâtons de Commandement* of the Magdalenian age than any which had been previously described.

Last summer, when my friend Mr. Marrett and I were returning from Toulouse, where we had enjoyed the hospitality of the French Association, we stayed at Perigueux on our way to some of the painted caves of Les Eyzies. We were fortunate in our choice of an hotel, for our host, M. L. Didon, proved to be an enthusiastic investigator of the caves in the neighbourhood. His collection of Aurignacian bone implements, obtained by him from the Aurignacian station of Castelmeule, is the finest I have seen, and, I should think, unrivalled anywhere. M. Didon informs me that he has completed its description, which will be published in the course of the winter.



The number and variety of the bone implements obtained from this single locality, dating from a period so long anterior to the Magdalenian, greatly impressed us, but the objects which most aroused my interest were three shaft-straighteners (see Fig.). These, while presenting a general resemblance to the Magdalenian bâtons, make a still nearer approach to those of the Eskimos previously re-